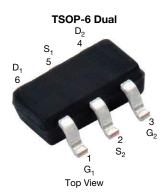




N- and P-Channel 30 V (D-S) MOSFET

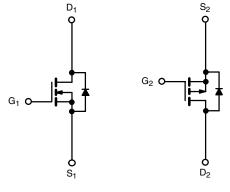


PRODUCT SUMMARY						
	N-CHANNEL	P-CHANNEL				
V _{DS} (V)	30	-30				
$R_{DS(on)}(\Omega)$ at $V_{GS} = \pm 10 \text{ V}$	0.105	0.200				
$R_{DS(on)}(\Omega)$ at $V_{GS} = \pm 4.5 \text{ V}$	0.175	0.360				
Q _g typ. (nC)	2.1	2.4				
I _D (A) ^a	2.5	-1.8				
Configuration	N- and p-pair					

FEATURES

- TrenchFET® power MOSFET
- 100 % R_g tested
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912





N-Channel MC)SF	Εī
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P-Channel MOSFET

ORDERING INFORMATION				
Package	TSOP-6			
Lead (Pb)-free	Si3552DV-T1-E3			
Lead (Pb)-free and halogen-free	Si3552DV-T1-GE3			

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C, unless otherwise noted)							
PARAMETER		SYMBOL	N-CHANNEL	P-CHANNEL	UNIT		
Drain-source voltage		V_{DS}	30	-30	V		
Gate-source voltage		V_{GS}	± 20	± 20	V		
Continuous drain current (T _J = 150 °C) ^{a, b}	T _A = 25 °C	I _D	2.5	-1.8	A		
	T _A = 70 °C		2	-1.2			
Pulsed drain current		I _{DM}	8	-7	А		
Continuous source current (diode conduction) a, b		I _S	1.05	-1.05			
$T_A = 25$		D	1.15		W		
maximum power dissipation a, b	T _A = 70 °C	P_{D}	0.73		VV		
Operating junction and storage temperature range		T _J , T _{stg}	-55 to +150		°C		

THERMAL RESISTANCE RATINGS						
PARAMETER	SYMBOL	TYPICAL	MAXIMUM	UNIT		
Maximum junction-to-ambient ^a	t ≤ 5 s	R_{thJA}	93	110		
	Steady state		130	150	°C/W	
Maximum junction-to-lead	Steady state	R _{thJL}	75	90		

Notes

- a. Surface mounted on FR4 board
- b. t ≤ 5 s



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PARAMETER	SYMBOL TEST CONDITIONS				TYP.	MAX.	UNIT	
Static							'	
Cata threahald valtage	.,,	$V_{DS} = V_{GS}, I_D = 250 \mu A$	N-Ch	1	-	-	V	
Gate threshold voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$	P-Ch	-1	-	-	v	
Cata hady lankaga	,	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$	N-Ch	-	-	± 100	nA	
Gate-body leakage	I _{GSS}	$v_{DS} = 0$ v , $v_{GS} = \pm 20$ v	P-Ch	-	-	± 100		
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$	N-Ch	-	-	1		
Zoro goto voltago droin current	1 .	$V_{DS} = -24 \text{ V}, V_{GS} = 0 \text{ V}$	P-Ch	-	-	-1] <u>,</u>	
Zero gate voltage drain current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55 °C	N-Ch	-	-	5	μA	
		$V_{DS} = -24 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$	P-Ch	-	-	-5		
On atota duain accurant a		V _{DS} = 5 V, V _{GS} = 10 V	N-Ch	5	-	-	A	
On-state drain current ^a	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -10 V	P-Ch	-5	-	-		
		$V_{GS} = 10 \text{ V}, I_D = 2.5 \text{ A}$	N-Ch	-	0.085	0.105	Ω	
Duain accurac on atata registance 3		$V_{GS} = -10 \text{ V}, I_D = -1.8 \text{ A}$	P-Ch	-	0.165	0.200		
Drain-source on-state resistance ^a	R _{DS(on)}	$V_{GS} = 4.5 \text{ V}, I_D = 2 \text{ A}$	N-Ch	-	0.140	0.175		
		$V_{GS} = -4.5 \text{ V}, I_D = -1.2 \text{ A}$	P-Ch	-	0.298	0.360		
Forward transconductance ^a	9 _{fs}	$V_{DS} = 10 \text{ V}, I_D = 2.5 \text{ A}$	N-Ch	-	4.3	-		
		V _{DS} = -15 V, I _D = -1.8 A	P-Ch	-	2.4	-	S	
Diode forward voltage ^a	V _{SD}	$I_S = 1.05 \text{ A}, V_{GS} = 0 \text{ V}$	N-Ch	-	0.81	1.1	V	
		I _S = -1.05 A, V _{GS} = 0 V	P-Ch	-	-0.83	-1.1	v	
Dynamic ^b								
Total gate charge	Q _g		N-Ch	-	2.1	3.2	- nC	
Total gate charge		N-Channel	P-Ch	-	2.4	3.6		
Onto annual alternation		$V_{DS} = 15 \text{ V}, V_{GS} = 5 \text{ V}, I_D = 1.8 \text{ A}$	N-Ch	-	0.7	-		
Gate-source charge		P-Channel	P-Ch	-	0.9	-		
Cata drain abarga	Q _{gd}	$V_{DS} = -15 \text{ V}, V_{GS} = -5 \text{ V}, I_{D} = -1.8 \text{ A}$	N-Ch	-	0.7	-		
Gate-drain charge			P-Ch	-	0.8	-		
Gate resistance	В		N-Ch	0.5	-	2.4	Ω	
Gate resistance	R_g		P-Ch	3	-	11	5.2	
Turn-on delay time	1		N-Ch	-	7	11		
Turri-on delay time	t _{d(on)}	N-Channel	P-Ch	-	8	12		
Rise time	t _r	$V_{DD} = 15 \text{ V}, R_1 = 15 \Omega$	N-Ch	-	9	14		
		$I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_g = 6 \Omega$	P-Ch	-	12	18		
Turn-off delay time	t _{d(off)}	P-Channel	N-Ch	-	13	20		
		$V_{DD} = -15 \text{ V}, R_L = 15 \Omega$	P-Ch	-	12	18	ns -	
Fall time	1	$I_D \cong -1$ A, $V_{GEN} = -10$ V, $R_g = 6 \Omega$	N-Ch	-	5	8		
	t _f		P-Ch	-	7	11		
0	t _{rr}	I _F = 1.05 A, di/dt = 100 A/μs N-C		-	35	60	1	
Source-drain reverse recovery time		I _F = -1.05 A, di/dt = 100 A/μs	P-Ch	_	30	60	1	

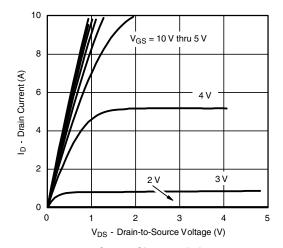
Notes

- a. Pulse test; pulse width $\leq 300~\mu s,$ duty cycle $\leq 2~\%$
- b. Guaranteed by design, not subject to production testing

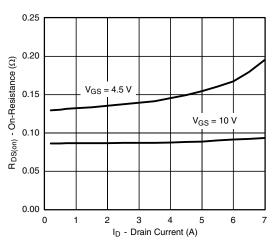
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



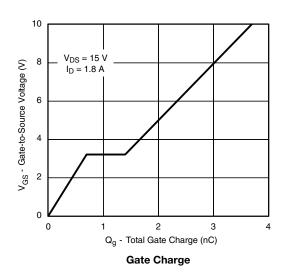
N-CHANNEL TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

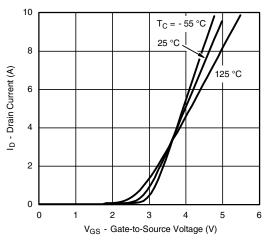


Output Characteristics

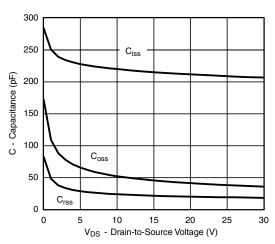


On-Resistance vs. Drain Current

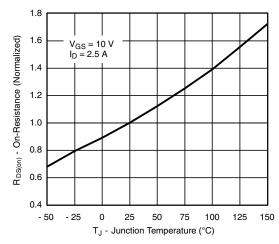




Transfer Characteristics



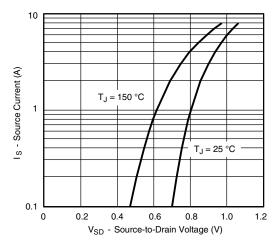
Capacitance



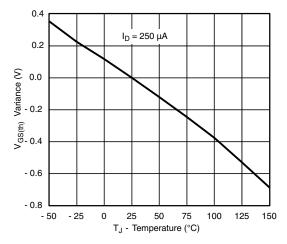
On-Resistance vs. Junction Temperature



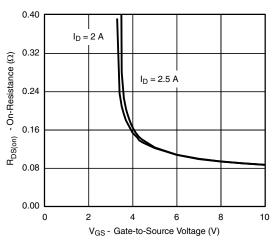
N-CHANNEL TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



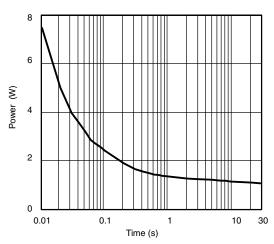
Source-Drain Diode Forward Voltage



Threshold Voltage



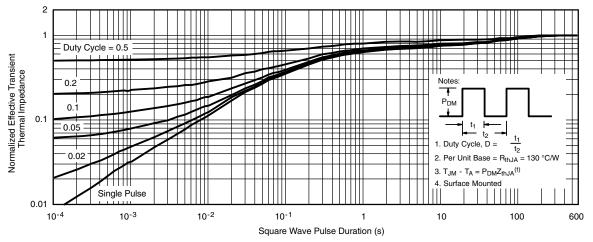
On-Resistance vs. Gate-to-Source Voltage



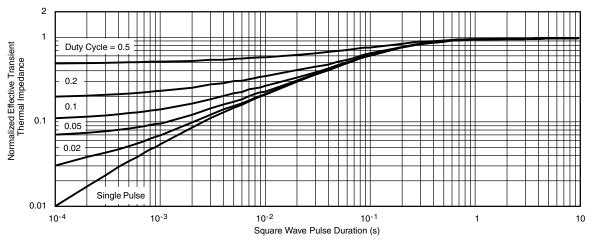
Single Pulse Power (Junction-to-Ambient)



N-CHANNEL TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



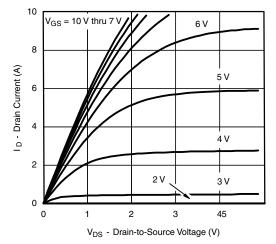
Normalized Thermal Transient Impedance, Junction-to-Ambient



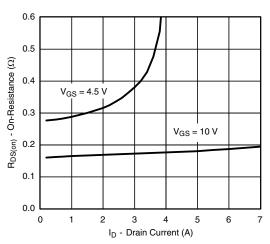
Normalized Thermal Transient Impedance, Junction-to-Foot



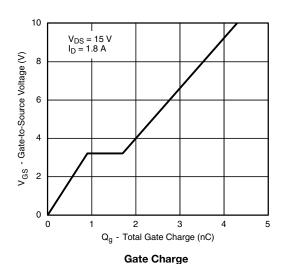
P-CHANNEL TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

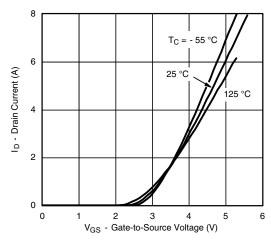


Output Characteristics

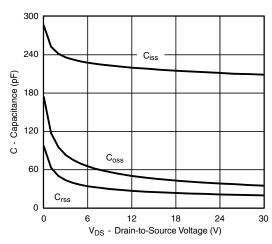


On-Resistance vs. Drain Current

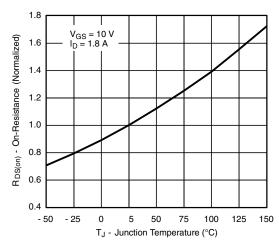




Transfer Characteristics



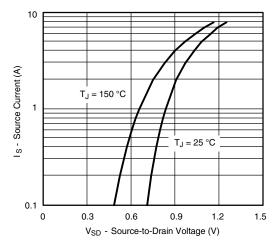
Capacitance



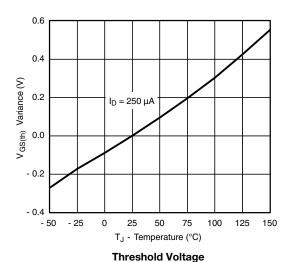
On-Resistance vs. Junction Temperature



P-CHANNEL TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

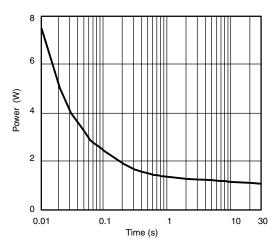


Source-Drain Diode Forward Voltage



0.6 0.5 0.5 0.5 0.5 0.0

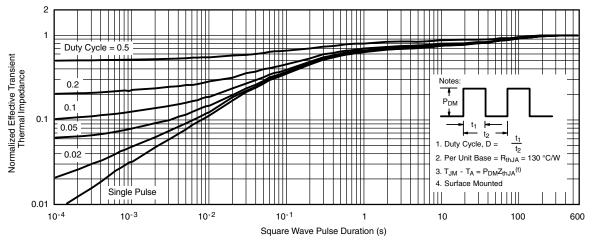
On-Resistance vs. Gate-to-Source Voltage



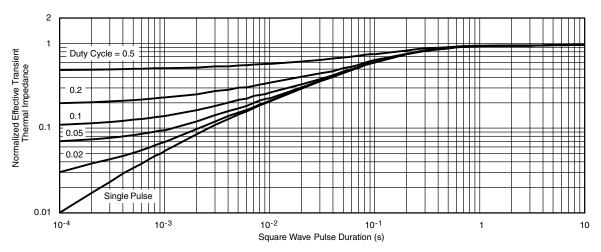
Single Pulse Power (Junction-to-Ambient)



P-CHANNEL TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

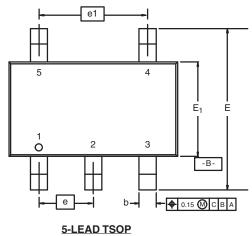
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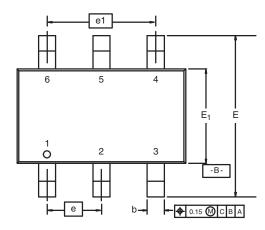




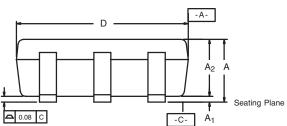
TSOP: 5/6-LEAD

JEDEC Part Number: MO-193C

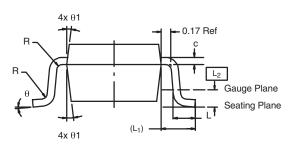




5-LEAD ISOP







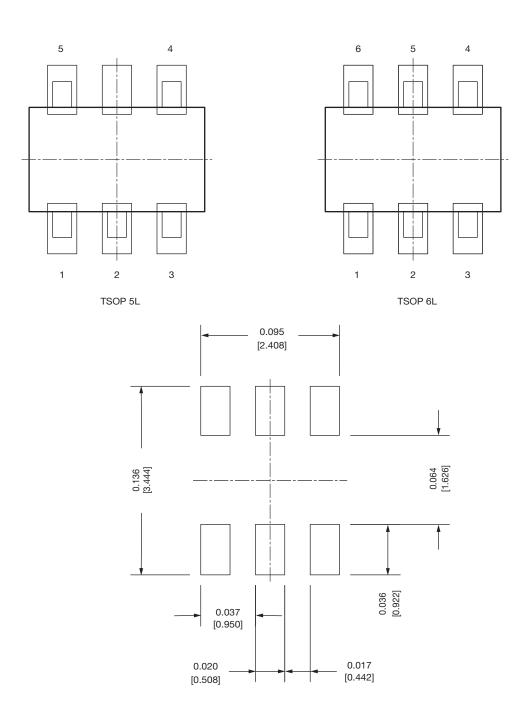
	MIL	LIMETER	RS	INCHES			
Dim	Min	Nom	Max	Min	Nom	Max	
Α	0.91	-	1.10	0.036	-	0.043	
A ₁	0.01	-	0.10	0.0004	-	0.004	
A ₂	0.90	-	1.00	0.035	0.038	0.039	
b	0.30	0.32	0.45	0.012	0.013	0.018	
С	0.10	0.15	0.20	0.004	0.006	0.008	
D	2.95	3.05	3.10	0.116	0.120	0.122	
E	2.70	2.85	2.98	0.106	0.112	0.117	
E ₁	1.55	1.65	1.70	0.061	0.065	0.067	
е		0.95 BSC		0.0374 BSC			
e ₁	1.80	1.80 1.90 2.00		0.071	0.075	0.079	
L	0.32	-	0.50	0.012	-	0.020	
L ₁	0.60 Ref			0.024 Ref			
L ₂	0.25 BSC			0.010 BSC			
R	0.10	-	-	0.004	-	-	
θ	0°	4°	8°	0°	4°	8°	
θ_1		7° Nom			7° Nom		
ECN: C-06593-Rev. I, 18-Dec-06 DWG: 5540							

DWG: 5540

Document Number: 71200 18-Dec-06



Recommended Land Pattern For TSOP-5L / TSOP-6L



Note

• All dimensions are in inches (millimeter)

ECN: C22-0860-Rev. B, 24-Oct-2022 DWG: 3010



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