

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

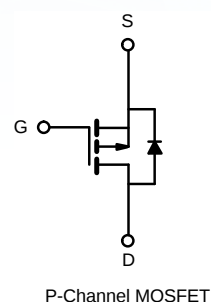
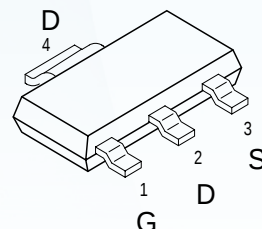
Product Specification

▶ Domestic	Part Number	MMFT2955T
▶ Overseas	Part Number	MMFT2955T
▶ Equivalent	Part Number	MMFT2955T

EV is the abbreviation of name EVVO

-60V P-Channel MOSFET
Features

- V_{DS} (V) = -60V
- I_D = -7A (V_{GS} = -10V)
 I_D = -6A (V_{GS} = -4.5V)
- $R_{DS(ON)}$ < 55m Ω (V_{GS} = -10V)
- $R_{DS(ON)}$ < 65m Ω (V_{GS} = -4.5V)


ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	- 60	V
Gate-Source Voltage		V_{GS}	$\pm$ 20	
Continuous Drain Current (T_J = 150 °C)	T_C = 25 °C	I_D	- 7.0 ^a	A
	T_C = 70 °C		- 5.2	
	T_A = 25 °C		- 4.8 ^b	
	T_A = 70 °C		- 4.1 ^b	
Pulsed Drain Current		I_{DM}	- 25	
Avalanche Current Pulse	L = 0.1 mH	I_{AS}	- 4.5	
Single Pulse Avalanche Energy		E_{AS}	10.1	mJ
Continuous Source-Drain Diode Current	T_C = 25 °C	I_S	6.9 ^a	A
	T_A = 25 °C		3.5 ^b	
Maximum Power Dissipation	T_C = 25 °C	P_D	10.4 ^a	W
	T_C = 70 °C		6.6 ^a	
	T_A = 25 °C		2.1 ^b	
	T_A = 70 °C		1.1 ^b	
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 ^b	Steady State	R_{thJA}	33	40	°C/W
Maximum Junction-to-Case	Steady State	R_{thJC}	0.98	1.2	

Notes:

 a. Based on T_C = 25 °C.

b. Surface mounted on 1" x 1" FR4 board.

-60V P-Channel MOSFET

SPECIFICATIONS (T _J = 25 °C, unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = - 250 μA	- 60			V
V _{DS} Temperature Coefficient	ΔV _{DS} /T _J	I _D = - 250 μA		68		mV/°C
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J			- 5.2		
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = - 250 μA	- 1.0		- 2.5	V
Gate-Source Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = - 60 V, V _{GS} = 0 V			- 1	μA
		V _{DS} = - 60 V, V _{GS} = 0 V, T _J = 55 °C			- 10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = - 5 V, V _{GS} = - 10 V	- 25			A
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = - 10 V, I _D = - 3 A		55		mΩ
		V _{GS} = - 4.5 V, I _D = - 2 A		65		
Forward Transconductance ^a	g _{fs}	V _{DS} = - 15 V, I _D = - 5 A	20			S
Dynamic ^b						
Input Capacitance	C _{iss}	V _{DS} = - 25 V, V _{GS} = 0 V, f = 1 MHz		1500		pF
Output Capacitance	C _{oss}			200		
Reverse Transfer Capacitance	C _{rss}			150		
Total Gate Charge	Q _g	V _{DS} = - 30 V, V _{GS} = - 10 V, I _D = - 5 A		38	56	nC
		V _{DS} = - 30 V, V _{GS} = - 4.5 V, I _D = - 5 A		19	30	
Gate-Source Charge	Q _{gs}			9		
Gate-Drain Charge	Q _{gd}			10		
Gate Resistance	R _g	f = 1 MHz		5.2		Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = - 2 V, R _L = 2 Ω I _D ≅ - 5 A, V _{GEN} = - 10 V, R _g = 1 Ω		10	15	ns
Rise Time	t _r			7	15	
Turn-Off Delay Time	t _{d(off)}			70	110	
Fall Time	t _f			40	60	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			- 6.9	A
Pulse Diode Forward Current ^a	I _{SM}				- 15	
Body Diode Voltage	V _{SD}	I _S = - 3 A		- 1	- 1.5	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = - 5 A, di/dt = 10 A/μs, T _J = 25 °C		45	68	ns
Body Diode Reverse Recovery Charge	Q _{rr}			59	120	nC
Reverse Recovery Fall Time	t _a			29		ns
Reverse Recovery Rise Time	t _b			16		

Notes:

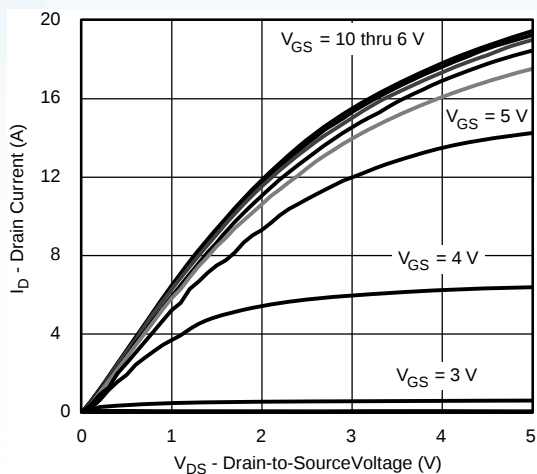
a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

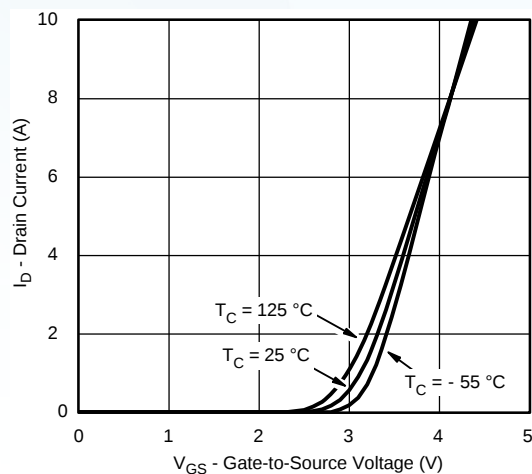
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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

-60V P-Channel MOSFET

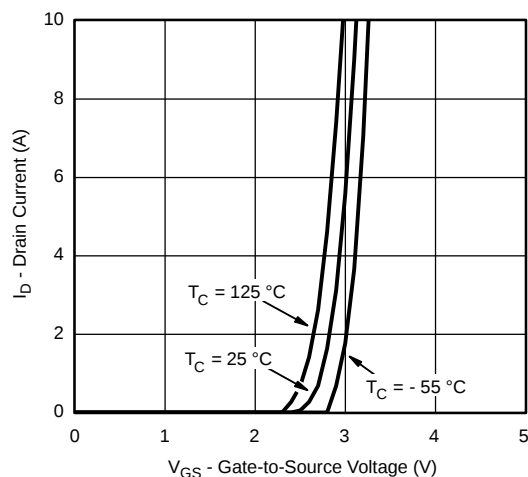
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



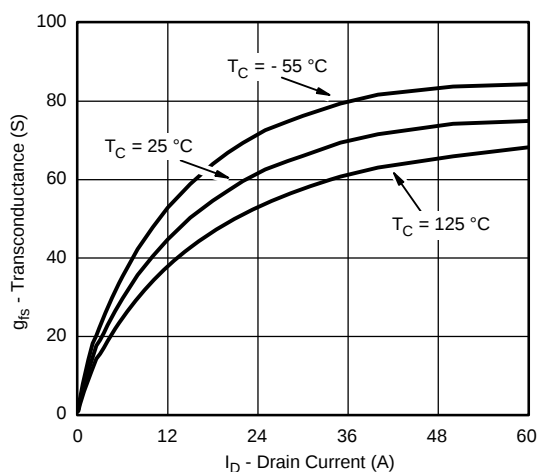
Output Characteristics



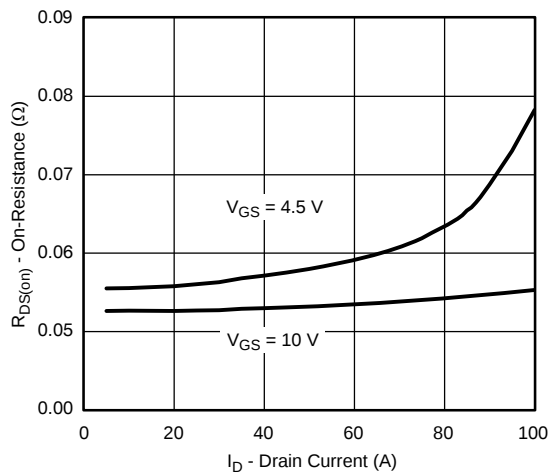
Transfer Characteristics



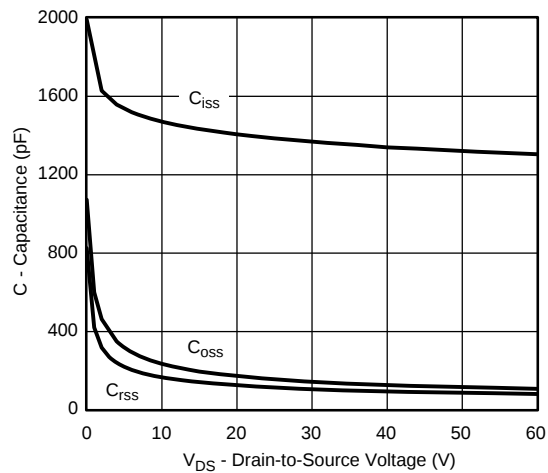
Transfer Characteristics



Transconductance



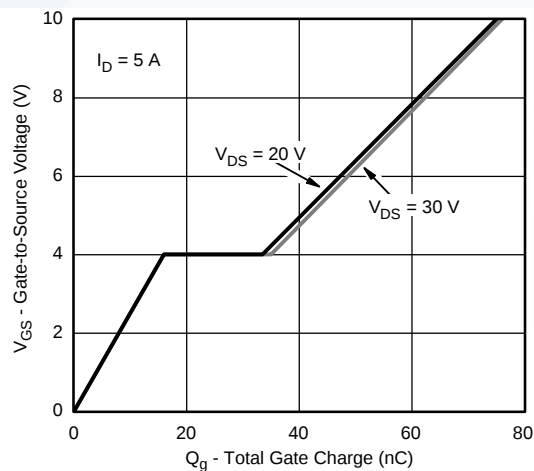
On-Resistance vs. Drain Current



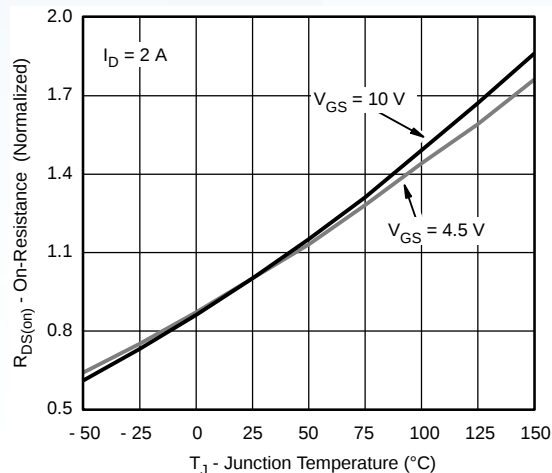
Capacitance

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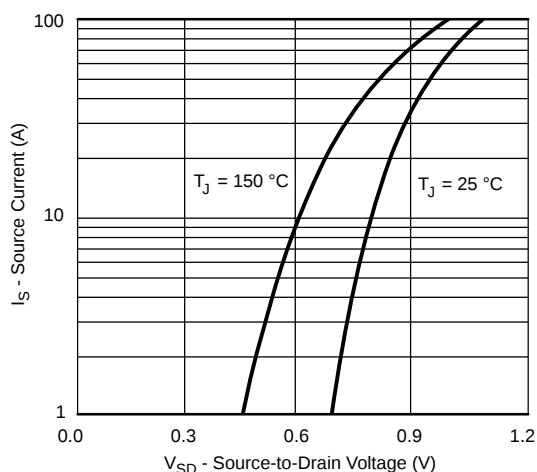
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



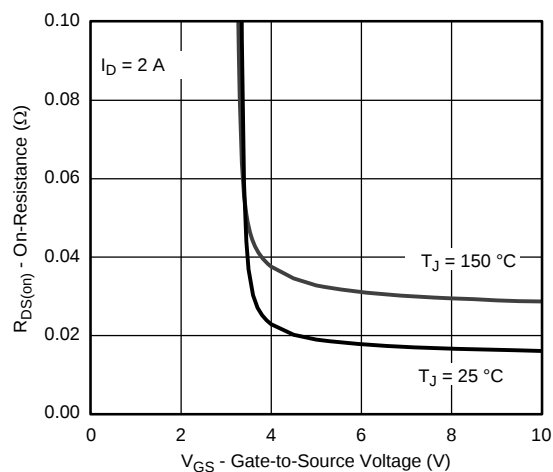
Gate Charge



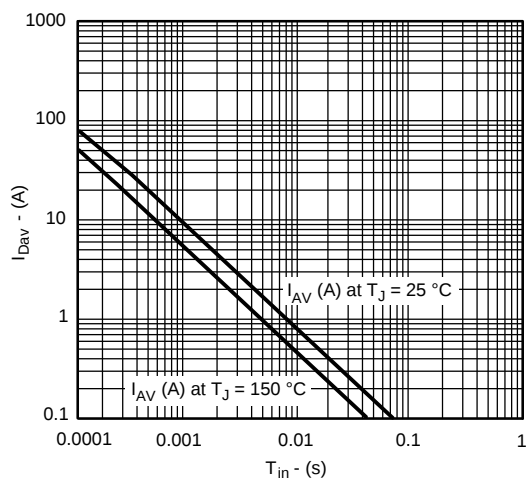
On-Resistance vs. Gate-to-Source Voltage



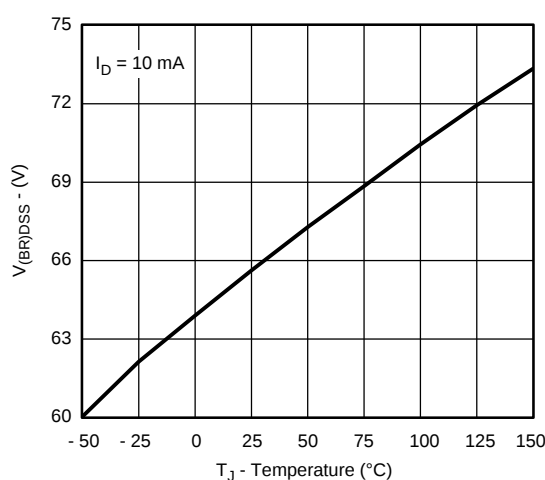
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



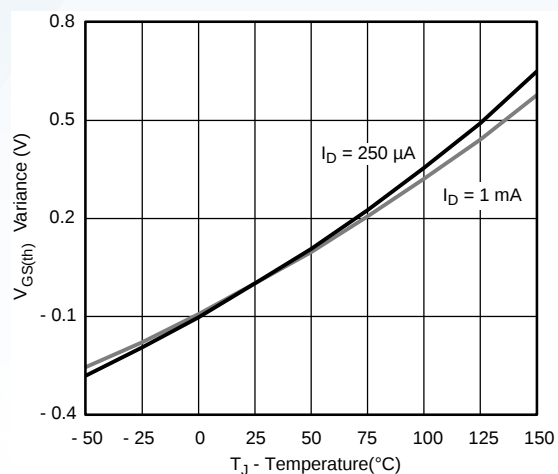
Single Pulse Avalanche Current Capability vs. Time



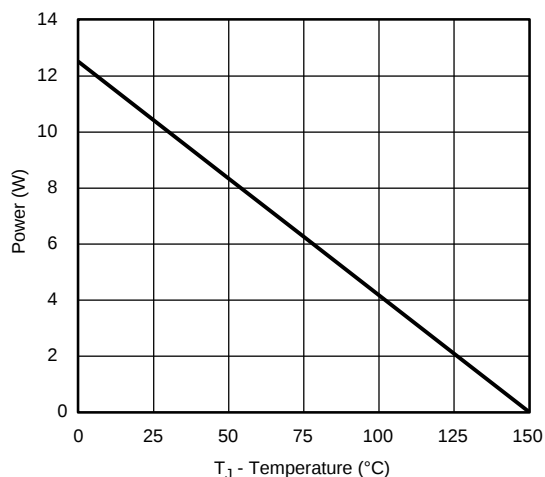
Drain-Source Breakdown Voltage vs. Junction Temperature

-60V P-Channel MOSFET

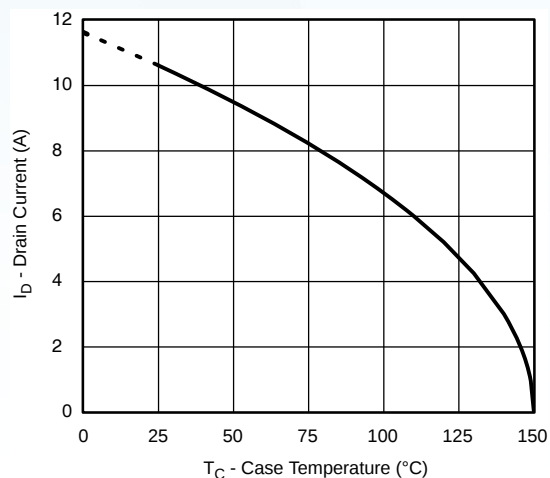
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



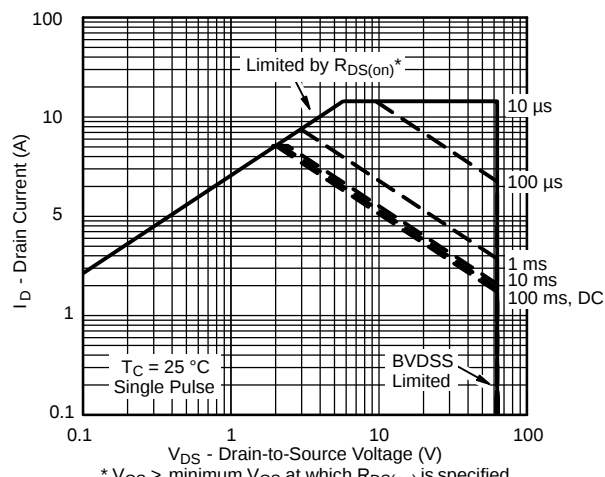
Threshold Voltage



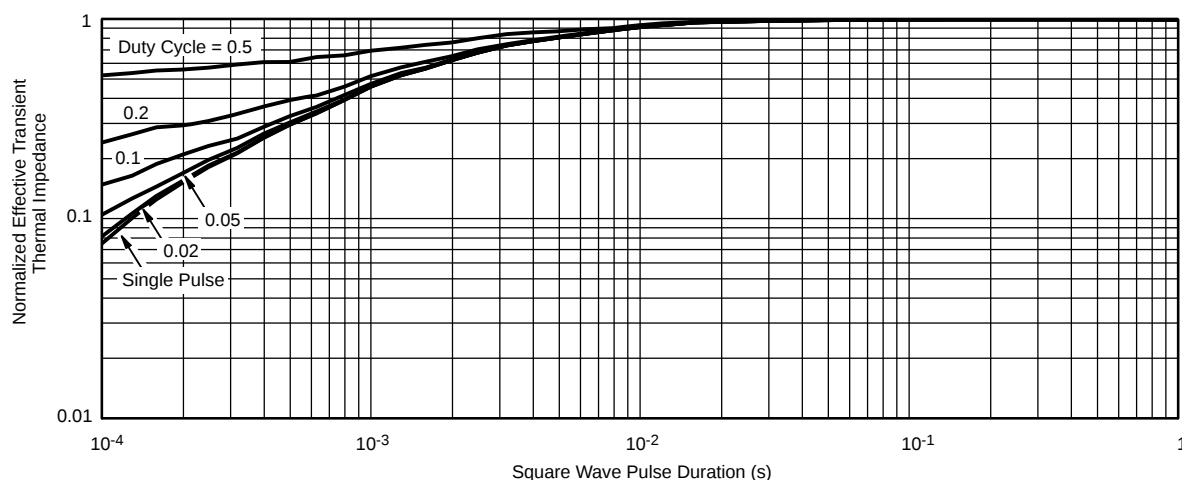
Power Derating, Junction-to-Case



Max. Drain Current vs. Case Temperature



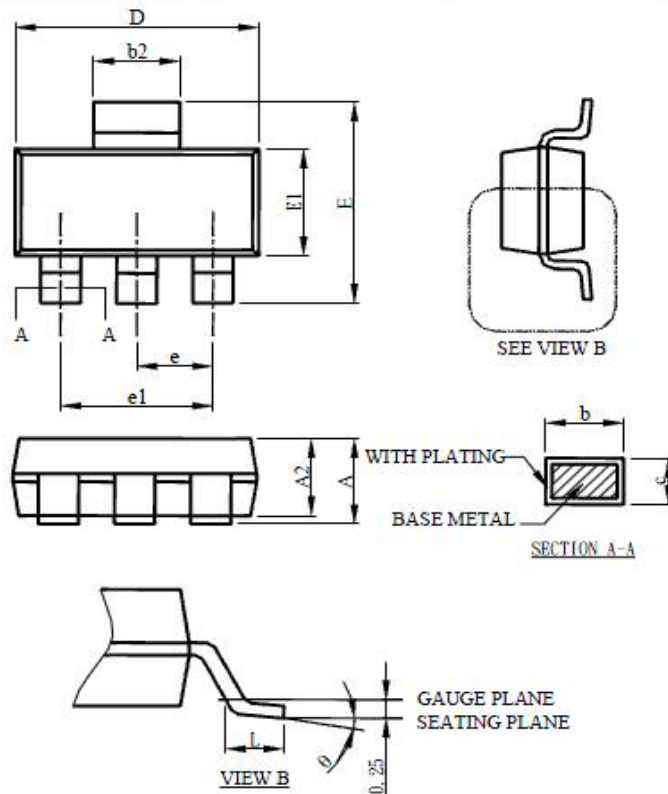
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified
Safe Operating Area, Junction-to-Case



Normalized Thermal Transient Impedance, Junction-to-Case

-60V P-Channel MOSFET

Package Mechanical Data SOT-223



SYMBOL	SOT-223	
	MILLIMETERS	
	MIN.	MAX.
A		1.80
A1	0.02	0.10
A2	1.55	1.65
b	0.68	0.84
b2	2.90	3.10
c	0.23	0.33
D	6.30	6.70
E	6.70	7.30
E1	3.30	3.70
e	2.30 BSC	
e1	4.60 BSC	
L	0.90	
θ	0°	8°

Note:

1. Refer to JEDEC TO-261AA.
2. Dimension D and E1 are determined at the outermost extremes of the plastic body exclusive of mold flash, tie bar burrs, gate burrs, and interlead flash, but including any mismatch between the top and bottom of the plastic body.
3. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

-60V P-Channel MOSFET**Ordering information**

Order code	Package	Baseqty	Deliverymode
MMFT2955T	SOT-223	1000	Tape and reel

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